



## **A Tale of Two Universities: Graduates Perceived Value of Entrepreneurship Education**

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Abstract

**Purpose:** This study evaluates career impact of entrepreneurship education (EE) considering evidence drawn from a quantitative study of alumni within two UK Higher Education Institutions (HEIs) from a retrospective perspective. The findings inform the value of the EE experience and its impact on both self-employability and wider employability career choices. This study will be of relevance to both enterprise support agencies and government policy makers.

**Design/Methodology/Approach:** This research study considers evidence drawn from an online quantitative survey of EE within two UK HEIs. The survey evaluated a range of issues including course design, programme satisfaction, impact, career outcomes and respondents demographics. Over 80 respondents completed the survey in full which was analyzed using a range of bivariate techniques.

**Findings:** The evidence indicates that EE programmes provide value both in terms of helping to enable business start-ups and also in supporting other career paths, through the enterprising knowledge and skill sets graduates acquire during their specialised studies. This study contributes to the literature by recognizing and measuring these contributions. For example, this study enables discernment between different EE course components and their value for different career outcomes.

**Practical Implications:** The HEI sector must evaluate its practices and measure the effectiveness of its graduates in terms of achieving sustainable business start-up. In course design, the evidence suggested that students value both the enterprising and entrepreneurial skills and knowledge components and discern value between them in their later careers. The findings suggest that EE graduates typically experience portfolio careers with multiple occupations in different sectors and roles within both employment and self-employment. Thus it is important that EE programme design includes both Enterprising and Entrepreneurial components to meet the future requirements of their graduates post-graduation.

**Originality/Value:** This study offers new evidence regarding the value of EE in UK HEIs. This evidence should inform course design and policy makers regarding the value of EE in creating self-employment and developing enterprising employees.

**Keywords:** Entrepreneurship Education; UK; University; Self-Employment; Enterprise; Graduates

**Paper Type:** Research paper

## A Tale of Two Universities: Graduates Perceived Value of Entrepreneurship Education

### Introduction

There has been a significant expansion of entrepreneurship education (EE) curriculum provision both within the UK and globally in Higher Education institutions (HEIs) in recent decades, a major driver of which has been to encourage successful business start-ups (Packham et al., 2010; Matlay, 2011). More broadly, Gibb (2005) suggests three main objectives for effective EE, to develop an effective understanding of entrepreneurship (Chen *et al.*, 1998; Jack and Anderson, 1999), acquire an entrepreneurial mindset (Loudon and Smither, 1999), and relevant knowledge regarding both the business start-up process and operating an enterprise effectively (Solomon *et al.*, 2002; Matlay, 2009). There remains ongoing debate, however, regarding the value of EE and its contribution in terms of achieving viable business start-ups that contribute significantly to employability and economic growth (Martin et al., 2013; Rideout and Gray, 2013; O'Connor, 2013; Rae et al., 2014).

In the UK, the extant literature base is emerging (Jones et al., 2017) but is typically short term in focus considering immediate attitudinal impact upon students of an EE intervention (Rae et al., 2014; Nabi et al., 2016). Literature considering the long term impact of EE is nascent (Shinnar et al., 2014) and requires reinforcement and extension (Martin et al., 2013; Rae et al., 2014). The key research question explored is therefore to provide a retrospective career impact evaluation of EE, considering evidence drawn from a quantitative study of alumni within two UK Universities. The data collected in this study and emergent results are mostly UK centric, but could have relevance on a global perspective for the EE community in Europe and beyond. The evidence collected informs the value of the EE experience and its impact on both self-employability and wider career choices. Moreover, this study will be of relevance to enterprise support agencies and government policy makers.

The following section considers the key literature in this area followed by a section outlining the methodology employed within the study. Thereafter, the key findings are presented followed by a discussion in contrast to the extant literature. The paper concludes with the Conclusion section confirming the contribution to knowledge achieved, the implications for both policy and practice, study limitations and further research required.

### Literature Review

The extant research suggests positive associations between entrepreneurial activity, economic growth and innovation (Van Praag and Versloot, 2007). The teaching of EE within the UK HEI curriculum has expanded considerably in recent decades (Neck et al., 2014; Preedy and Jones, 2015), driven by the requirement to enhance employability skills (Etzkowitz et al., 2000), reduce graduate unemployment (Onuma, 2016) and help enable entrepreneurial activity to solve economic underperformance (Matlay, 2006).

Previously, Beynon et al. (2014) noted that ongoing changes in UK society were impacting on the job market. For example, factors such as privatization, deregulation, restructuring,

environmental impacts, increased legal provision for minority groups and the decline in public sector size and importance have compounded business process complexity. Moreover, at an organizational level, increased economic uncertainty, globalization/anti-globalization, decentralization, downsizing, business process re-engineering, increased strategic alliances and mergers as well as workplace flexibility are creating increased business uncertainty. The outcome of such changes is that the individual is expected to undertake a diversity of job roles during their life-long career and is faced with an increased variety of employment choices, including increased self-employment opportunities (Henry et al., 2005).

Harrison and Leitch (2010) note the significant role that HEI's are expected to play in economic development. UK graduate unemployment of 3.1%, and inactivity rates (the percentage out of the labour force, for example, not employed or unemployed) of 10.1% (DBIS, 2016), have led to the development of entrepreneurial skills and knowledge becoming a priority for government policy makers seeking to create a more enterprising and innovative society (Henry et al, 2005; Autio et al, 2014). Whilst self-employment is chosen by only a minority of graduates (see Pickernell et al, 2011; Matlay, 2011), it could be argued that ongoing cuts to the UK's public sector provision makes greater entrepreneurial activity increasingly an economic necessity, in order to generate alternative career opportunities (Jones et al., 2015). Zhang et al (2014) note that the preference for self-employment is an important indicator of actual involvement in self-employment, and that women have a lower preference for self-employment than employment in contrast to men. Several studies have indicated that taking entrepreneurship courses (Souitaris et al., 2007; Athayde, 2009; Sánchez, 2013) or their very presence increases interest in self-employment (Walter et al., 2013).

All these factors have contributed to the significant expansion of the EE topic, both in terms of curriculum provision and the growth in related research as an independent academic discipline (Jones and Matlay, 2011; Jones and Jones, 2011; Henry, 2013). UK growth in the EE discipline is mirrored by global expansion and increased interest in related aspects (Fayolle et al., 2006). This has facilitated the emergence of a number of dedicated EE events including "Enterprise Educators UK" and the "3E conference." These conferences seek to disseminate and share effective pedagogical practices within a rapidly expanding discipline. A consequence of the changing socio-economic and business environment and increased curriculum provision has been a growth in the interest from undergraduate students towards self-employment as a potential career option (Brenner et al., 1991; Kolvereid 1996; Matlay, 2006; Zellweger et al., 2011). Kolvereid and Moen (1997) claim that graduates with an EE degree were more likely to start new enterprises than other graduates.

Despite this growth, however, there is ongoing debate regarding the effectiveness of EE and calls from funders, policy makers and the academic community for further evidence to validate its social and economic impact and also for the dissemination of best practice (Fiet, 2001; Matlay, 2005; Fayolle et al., 2006, Duval-Couetil, 2013; Fayolle and Gailly, 2015). Holden et al. (2007) have identified the need for ongoing and increasingly sophisticated research in the area of graduate entrepreneurship. Achieving economically sustainable graduate start-ups and longer term job creation remains the ultimate measurement for judging the success of EE (Fayolle et al., 2006; Rasmussen and Sørheim, 2006). Though, it is suggested that students pursue EE courses to acquire additional skills and knowledge, independence and increased confidence through an

entrepreneurial career (Young, 1997; Galloway and Brown, 2002; Beynon et al., 2014). Furthermore, it is argued that EE programmes provide the opportunity to develop subject specific knowledge and experience (DeTienne and Chandler, 2004; Politis, 2005). In addition, the extant literature reveals several studies measuring immediate changes in entrepreneurial attitudes as a result of an EE intervention (Peterman and Kennedy, 2003; Souitaris et al, 2007; Packham et al, 2010; Jones et al, 2013).

Some authors, however, continue to question the effective integration of entrepreneurship into the curriculum (see Hannon, 2006), the extent to which it benefits students (Chell and Allman, 2003) and the effectiveness of formal and informal EE (Hytti and O’Gorman, 2004). Both Bechard and Toulouse (1998) and Henry et al. (2004) have noted the independence and complexity of such an evaluation. Furthermore, Block and Stumpf (1992) suggest the importance of measuring the delayed effects that may occur from the evaluation of EE. Several authors, including Shook et al. (2003) and Matlay (2011) suggest that attitudes, perceptions and intentions toward self-employment can alter over time. Studies that consider the issue of time and its dynamic in the field of EE are, however, limited (Shook et al., 2003). Moreover, research that explicitly takes into account the time variable in the field of entrepreneurial intention (Shook et al., 2003) or the dynamics of the phenomenon (Moreau and Raveleau 2006) are scant.

Rauch and Hulsink (2015) note that the number of firms created by graduates from a single university (Massachusetts Institute of Technology) contributed to approximately a million jobs and generated revenues in excess of 164 billion US\$ worldwide (Roberts and Eesley, 2011). However, there remains a need to track the experiences and destinations of graduate students, as the unit of analysis. The complex reasons for graduates pursuing an entrepreneurial career are multifaceted. Amongst others, Duval-Couetil and Long (2014) identify several factors including the desire for job satisfaction, market opportunities, family commitments, limited career opportunities, life dissatisfaction, flexibility, need for achievement, desire for independence, lack of other alternatives (also Cabrera, 2007; Schjoedt and Shaver, 2007).

There is a need to understand the effectiveness of EE graduates and their activities post course (Matlay, 2011). In this context, Pittaway and Cope (2007) suggest that the impact of EE on graduate self-employment levels remains unclear, including investigation into whether such education provides the basis for graduates to be effective entrepreneurs. Rae et al. (2010) argue that the UK requires enterprising graduates to enable the wellbeing and productivity levels required in the future. However, Pickernell et al. (2011) point out that this is based on the assumption that graduate entrepreneurs possess skills, abilities, and resources that will produce more beneficial outcomes than non-graduates. Small business owner-managers claim that their firms require resourceful graduates with relevant entrepreneurial knowledge and skills, including knowledge of assets, capabilities, organizational processes, attributes and information, as well as knowledge sharing competencies enabling improved organisational efficiency and effectiveness (Barney and Arikan, 2001). This issue draws on the concept of effectuation, whereby individuals within the business rely on the entrepreneur, as owner/manager, for shaping and constructing its infrastructure over time, according to the means and resources available (Sarasvathy, 2001). Recent EE research (Smolka et al., 2016; Reyman et al, 2016) has questioned whether effectuation or causation approaches are more effective during the initial start-up stage (Perry et

al., 2012). Indeed, there is minimal research evaluating the retrospective value students give to theoretical concepts such as effectuation following graduation.

Pickernell et al. (2011) suggest that graduate entrepreneurs exhibit both general and specific competencies in accessing knowledge from a range of sources, as well as being more likely to access university-based guidance as well as informal sources of advice (e.g. from family and friends). Furthermore, sources of support linked to informal networks or trade associations, in addition to direct industry knowledge (customers and suppliers) are also more likely to be accessed by graduate entrepreneurs (Matlay, 2011). Therefore, the primary research aims of this study are to explore the career paths of UK graduates and postgraduates who have previously completed a programme of EE and evaluate, from a retrospective perspective, the perceived value obtained by them from their EE experiences.

**Methodology**

This research study considers evidence drawn from a quantitative study of two UK HEIs, namely Coventry University (CU) and the University of South Wales (USW). These HEIs were selected due to their significant involvement in EE curriculum development in recent years. Both HEIs have offered a wide range of undergraduate and postgraduate EE programmes, including specialist business start-up programmes. Respondent entry criteria for inclusion in the survey required completion of a full time or part time course in EE at postgraduate or undergraduate level (e.g. BA Entrepreneurship, MSc in Entrepreneurship) at either HEI within the last ten years. The study employed a self-selection sampling method whereby survey participants had to meet the specific entry criteria (McDowall and Saunders, 2010). Respondents were identified from HEI records and thereafter contacted through social media to assess their willingness to participate in the survey. The identification of potential respondents involved detailed Internet searches and use of professional networking websites, such as LinkedIn and HEI alumni databases to identify suitable participants (Denscombe, 2003). When an individual was identified they were contacted through the social message platform with a message detailing the research process. It was noted that there was the potential for selection bias in the data collection process given that potential respondents had to be “findable” on the Internet. However, given the passage of time since graduation and the cultural adoption of technology by UK society it was decided that this was acceptable. Internal ethical approval was obtained within all the authors HEIs prior to the commencement of the data collection process.

This study utilises the QAA’s definition of ‘enterprise and entrepreneurship’ programmes as focusing “*on the development and application of an enterprising mindset and skills in the specific contexts of setting up a new venture, developing and growing an existing business, or designing an entrepreneurial organisation*” (QAA, 2012, p.6). Thus, the focus is on graduates who have completed a programme of EE that aims to educate students for self-employment and prepares them for an entrepreneurial career.

An online structured questionnaire was designed to explore the nature of the EE undertaken (level, qualification achieved, when obtained), programme content, type and nature of study (e.g. part time, full-time, face to face, e-learning), programme focus (e.g. start-up, growth), satisfaction with programme, current career outcome (e.g. self-employment, employment etc),



career history (e.g. self-employment, employment etc), impact of EE experience (high impact to no impact) and demographic profile (e.g. age, gender, ethnicity). The data was collected by the authors over a four week period. Respondents were asked to identify the content of their EE programme from a pre-prepared list including 22 categories of EE content including business start-up, business planning, and entrepreneurial strategy. This listing was developed from observation of content on several EE course curricula on the Internet. The questionnaire was designed to encourage efficiency and ease of user completion.

Thereafter, eligible participants were emailed and sent an embedded link to a Qualtrics electronic online survey. The email explained the purpose of the study and stressed that completion of the survey was optional, with all necessary protocols regarding ethical approval, confidentiality, etc., being strictly observed and adhered to. Contact details of the lead researcher were provided in case of any queries. Prior to release, the questionnaire was piloted with a group of independent EE academics to gather feedback on 'fitness for purpose'. Following this process, the survey instrument was edited and refined. This predominantly involved refinement and rewording of individual questions to improve clarity and question meaning.

The final career choices and current practices of respondents in both HEI were compared and contrasted in both employability and self-employability career options. Reflections on the effectiveness and impact of the EE experience were evaluated. After the survey's initial release, two sets of follow up emails were sent to non-responders, to encourage completion. A set time period of three weeks was identified to gather sufficient respondents to ensure that a viable sample size was collected. By the deadline, a total of 87 respondents completed the survey from 125 individuals contacted. After inspection of responses this was reduced to 83 respondents due to partial completion of the research instrument in four cases, giving an overall response rate of 66%. The high response rate can be attributed to the familiarity and willingness of the participants to be involved in the study. The collected data were analyzed using univariate analysis methods employing SPSS software to identify significant relationships and associations.

The analysis was conducted using bivariate techniques. Where bivariate techniques were required, both variables used ordinal scales then the Kendall Tau B statistic was deemed the most appropriate. When one of the variables had a dichotomous outcome (see table 5) a comparison of means test was undertaken, supported by one-way Anova, to explore the relationship between the content of EE and five individual outcomes and a composite factor analyzed. The composite factor was identified using exploratory factor analysis including all five outcomes from EE (see table 4), identifying a one factor solution, with each of the five individual variables highly correlated with the factor, explaining nearly 62% of total variance and a Cronbach Alpha of 0.841. The next section presents the key findings of the study.

## Key Findings

Table 1 highlights some of the key demographics within the data. Overall, the survey attracted 83 respondents of which 39% derived from CU and 61% from USW. The larger response rate from USW can be explained by the institutions larger students' numbers in the EE discipline. Overall, 57% of respondents were male and 43% were female. As a discipline, Entrepreneurship seems to attract a predominantly male audience although, with the recent growth of the

discipline, it appears to be gaining popularity with female students as well. In terms of ethnicity, 70% of the respondents were white, 12% black and 7% Asian. At the time of study, 45% were within the 18-24 age category, 30% were 25-34, 15% 35-45, 6% between 46 and 54 and 3.5% in the age category 55-65. This evidence suggests that EE programmes appeal to a wide age demographic, probably driven by the vocational nature of the discipline, the opportunity that the self-employment career path offers, and also potential funding for EE courses (for example via EU funding streams).

It should be noted that 75% of survey respondents were over the age of 25 and well into their careers post university study. This allows this study to make a valid observation post education regarding the value of the EE programme. Respondents were questioned on when they had completed their EE programme of study. Table 1 reveals that over 30% of respondents completed their course over five years previously, over 25% between three to five years ago and 29.1% between one and three years. The remaining 15% had completed their course after one year. It was a deliberate strategy of the research team to explore the experience of EE graduates and postgraduates several years following the completion of their course.

Respondents were queried regarding their initial motivations for undertaking the EE programme. As Table 1 illustrates the results show that 45% undertook the course to obtain a qualification while 52% were interested in entrepreneurship as a subject. In terms of business start-up activity, 16% were thinking about starting a business at the time, approximately 13% were in the process of undertaking a start-up, approximately 13% were considering the option immediately following their course and 29% at some future point in their careers. These results confirm the importance of the qualification to the student and also the diverse career expectations in terms of business start-up at the outset of the course of study.

In terms of EE qualification outcome, 37% of respondents achieved a degree level award, 48% a Master's degree and approximately 6% a Doctorate, illustrating Entrepreneurship as a subject across the spectrum of University awards for the respondents. There is, therefore appetite for the subject at postgraduate level within the student community surveyed for this study. When considering course evaluation post programme from a retrospective perspective, approximately 77% of respondents identified that they were quite or very satisfied in terms of the knowledge, skills and experiences that their courses provided. Just over 9% of respondents offered a neutral response and approximately 14% noted that they were either very dissatisfied (2.3%) or quite dissatisfied (11.6%). These results suggest that overall the entrepreneurial education offered value and was fit for purpose.

Table 1 also provides analysis of career outcomes. In terms of current career, the following outcomes were apparent. Overall, 36% of respondents were self-employed and a further 14% were employed within the small business sector. Otherwise, 23% of respondents were employed in large private sector businesses (>250 employees) or working within the public sector (approximately 20%). A minority undertook charity work (3.5%), were employed in a social enterprise (3.5%) or were volunteering (4.7%). More disappointingly, 8% reported themselves as unemployed or economically inactive. Thus the predominant occupation destination has been self-employment suggesting that the prior education has provided some value towards current career outcome. When asked to relate their career history it was apparent that respondents had



acquired wide experience across the categories. However self-employment remained the dominant career path with 50% indicating that they had taken this option at some point.

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Table 1: Survey Demographics, Motivations, Qualification attained and Current Career Profile

Variable	Coventry %	USW %					N (Missing)	
University last accredited entrepreneurship taken at	39	61					83 (4)	
	Within last year %	1-3 years ago %	3-5 years ago %	Over 5 years %			N	
How Long ago last accredited entrepreneurship course taken	15.1	29.1	25.6	30.3			86 (0)	
	Obtain a Qualification %	Interested in entrepreneurship as subject %	Thinking about starting a business at the time %	In process of starting business at time %	Potentially starting business immediately after course %	Potentially starting business at some point in future %	N	
Reason to take course	45.3	52.3	16.3	12.8	12.8	29.1	86 (0)	
	4 %	5 %	6 %	7 %	8 %		N	
Level Entrepreneurship Qualification Achieved	5.8	3.5	37.2	47.7	5.8		86 (0)	
	<25%	25-50%	51-75%	75-99%	100%		N	
Perceived proportion of Course that was Entrepreneurship Focused	15.1	25.6	25.6	27.9	5.8		86 (0)	
	Very Dissatisfied %	Quite Dissatisfied %	Neutral %	Quite Satisfied %	Very Satisfied %		N	
Satisfaction with Course	2.3	11.6	9.3	31.4	45.3		86(0)	
	Part Time %	Full Time %					N	
Delivery Pattern	27.2	72.8					81 (5)	
	Unemployed / Economically Inactive %	Volunteering %	Employed in large (>250 employees) Private Business %	Employed in SME private business %	Employed in Public Sector (incl. education) %	Employed in Charity %	Employed in Social Enterprise %	Self Employed %
Current Activity	8.1	4.7	23.3	14	19.8	3.5	3.5	36
Previous experience (since taking course): at least 1 episode	29.1	37.7	37.7	32.6	30.2	5.8	14	50

	<b>18-24 %</b>	<b>25-34 %</b>	<b>35-45 %</b>	<b>46-54 %</b>	<b>55-65 %</b>	Over 65	N	
Age on course	45.3	30.2	15.1	5.8	3.5		86	
Age Now	20.9	44.2	14.0	14.0	5.8	1.2	86	
	<b>Male</b>	<b>Female</b>						
Gender	57%	43%					86	
	<b>White %</b>	<b>Black %</b>	<b>Asian %</b>	<b>Indian %</b>	<b>Pakistani %</b>	<b>Chinese %</b>	<b>Other %</b>	N
Ethnicity	69.8	11.6	7	2.3	1.2	2.3	5.8	86 (0)

The next element of the study asked respondents to identify the course content that they experienced during their course. Table 2 asks the respondents to identify the course content they experienced on their EE course. Table 2 highlights the prevalence of EE programme content and identifies Business Research Methods (92%), Entrepreneurial Strategy, (87%), Innovation (81%) and Leadership (80%) as most prevalent. The least prevalent content were Coaching (only 30% of respondents indicating that their course had included this topic), Bricolage/ Resourcefulness/ Effectuation (35%) and Social Media (37%). The responses here probably reflect the most distinctive or memorable elements of the courses. Recognition of content such as Business Start-up, Small Business Finance and Growth elements also reflect the consistent and typical construction of EE programmes.

Table 2: Entrepreneurship Education Course Content

Content	% of Respondents	N (Missing)
Entrepreneurial Opportunity Recognition	63.2	76 (10)
Small Business Start-up	73.2	82 (4)
Small Business Planning	76.8	82 (4)
Small Business Finance	68.3	82(4)
Leadership	80.2	81 (5)
Pitching	51.3	76 (10)
Networking	56.8	81 (5)
Coaching	30.3	76 (10)
Mentoring	43.2	81 (5)
Marketing	79.1	86 (0)
Business Research Methods	91.8	85(1)
ICT/Website/ E-commerce	52.5	80 (6)
Social Media	36.7	79 (7)
Social Entrepreneurship	53.2	79 (7)
Intrapreneurship	55.9	68 (18)
Entrepreneurial Strategy	86.6	82 (4)
Female Entrepreneurship	36.4	77 (9)
Internationalisation	74.0	77 (9)
Innovation	81.0	84 (2)
Growth	78.5	79 (7)
Bricolage/Resourcefulness /Effectuation	34.9	63 (23)
Entrepreneurial environment assessment	63.3	79 (7)

Following on, the study considered the effects of EE on the future career activity of the respondents as identified within Table 3, namely self-employment, intrapreneurial activities, general activities, entrepreneurial support activities and general enterprising behaviour. In terms of having a “very positive impact” the respondents identified general enterprising behaviour

(53%) as having the strongest result, followed by self-employment (48%) and entrepreneurship support activities (47%). The results therefore demonstrate some discernment between enterprising and entrepreneurial behaviours for the respondents at least. This issue has been recognised within the discipline in recent years and is most effectively illustrated by the QAA (2012) Guidelines for Enterprise and EE, which provides definitions of both behaviours.

**Table 3: Impact of Entrepreneurship Course**

Impact on	Small Positive Impact %	Very Positive Impact %	Not Relevant (Defined as Missing)
Self-Employment	35.0	48.3	26
Intrapreneurial Activities	36.7	38.3	26
General Activities in organisation have been employed in	42.9	35.7	16
Entrepreneurship Support Activities	36.5	47.3	12
General Enterprising Behaviour	37.0	53.1	5

Tables 4 and 5 present the outcomes of a factor analysis and explores the relationships between the content of EE courses and positive effects of EE on the five individual career outcomes (e.g. “Self-Employment”, “Intrapreneurship”, “General activities”, “Entrepreneurship Support Activities” and “General Enterprising Behaviour”) and the composite factor. The analysis revealed several noteworthy findings. For “General Enterprising Behaviour”, for example, Small Business Start-up, Internationalization and Growth were identified as significant factors at a 1% level. This suggests a wide range of business experience is valuable to achieving an enterprising mindset. This experience needs to encompass both the endogenous and exogenous factors impacting upon the firm. For “General Activities in Organisation Worked for” Entrepreneurial environment assessment, Bricolage/Resourcefulness/Effectuation as well as Internationalization course elements were identified as significant factors related to a positive impact from EE. Knowledge of these factors can also be seen as valuable in the general workplace as they potentially provide holistic knowledge of the working environment and the functioning of the business world.

**Table 4: Factor Analysis Composite of Usefulness of Outcomes from EE**

Variable	Factor: Usefulness of Outcomes
Self-Employment	0.667
Intrapreneurial Activities	0.775
General Activities in organisation have been employed in	0.890
Entrepreneurship Support Activities	0.818
General Enterprising Behaviour	0.743
% of Variance Explained	61.81%
Cronbach Alpha	84.10%
N (Missing)	40 (46)



Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.757
Bartlett's Test of Sphericity    Approx. Chi-Square	85.964
Df	10
Sig	0.000

The concept of Bricolage/Resourcefulness/Effectuation in particular is regarded as a valuable knowledge and capability for an individual across the range of potential outcomes, with both employed and self-employed, being significant at the 5% level at least for all the variables. Thus, the ability to maximize limited resources/budgets and be resourceful and proactive were identified as key competencies of relevance in driving a positive impact from EE. Indeed, for “Intrapreneurship,” Bricolage/Resourcefulness/Effectuation was the only variable found to be related to a positive EE related outcome at the 1% level of significance. Organizations’ possessing resourceful individuals with the capability to maximize resources would therefore appear to be a key competency of relevance to both intrapreneurial and entrepreneurial behaviours regardless of organizational size.

**Table 5: Comparison of Means (Only Results with 2-tailed Significant Results Reported) where + shows content is positively associated with positive impact of entrepreneurship education on Activities**

Content	Factor Analysed Composite	Self-Employment	Intrapreneurship	General Activities in Organisation Worked for	Entrepreneurship Support Activities	General Enterprising Behaviour
Entrepreneurial Opportunity Recognition	+ *	+++	+			+
Small Business start-up		+				+++
Small Business Planning		+				+
Small Business Finance		+				
Leadership		+				+
Pitching						
Networking		+				
Coaching		+				
Mentoring						
Marketing		+++				
Business Research Methods		+				
ICT/Website/ e-commerce		+				+
Social Media		+				
Social Entrepreneurship	+	+			+	+
Intrapreneurship						
Entrepreneurial Strategy						+
Female Entrepreneurship			+			
Internationalisation				+++		+++
Innovation		+				
Growth	+	+++				+++
Bricolage /Resourcefulness / Effectuation	+++	+++	+++	+++	+	+
Entrepreneurial environment assessment	+	+		+++	+	+

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Significant at 1-tailed level \* = 5%, \*\*=1%

Unsurprisingly, the “Self-Employment” outcome was the one with which the greatest number of content variables was positively and significantly related to EE courses studies. In addition, at the 1% level of significance, Entrepreneurial Opportunity Recognition, Marketing, Growth and Bricolage/Resourcefulness/Effectuation were all positively related to a beneficial effect from EE. This is again understandable in that those in self-employment need to be able to identify and exploit opportunities and effectively market their enterprises to be able to grow their businesses. The capability to effectively maximize limited resources within a small business is essential especially in difficult economic periods.

## Discussion

This study adds to the limited EE literature considering retrospective impacts upon graduated students drawing on a quantitative survey from two UK HEIs (Holden et al., 2007). The findings discern further understanding regarding the retrospective value of EE course content towards various career outcomes and eventual career outcomes achieved. The study offers a valuable retrospective perspective, in that 55% of the sample had completed their EE course over three years previously. It was noteworthy that graduated students were motivated to undertake their courses to obtain both a University qualification (45%) and due to their interest in the subject matter (52%). The interest in the subject matter confirms the prior studies by DeTienne and Chandler (2004) and Politis (2005). However, the interest in acquiring a University qualification in EE is more novel suggesting that EE graduates are more appreciative regarding the value of University qualifications towards their career profile at a later stage. The actual act and process of business start-up were more secondary motivators to undertaking an EE course. This result confirms the importance of degree qualifications to the student community but also the value it offers to the individual student and their later career development. The fact that 48% of survey respondents achieved a Master’s level qualification also suggests that postgraduate EE courses are potentially an attractive proposition to the student community interested in EE.

The results also confirmed that while self-employment (36%) was the most obvious ultimate career outcome both at the point of survey and in previous career choices (50%), respondents had often experienced a portfolio of different career occupations with time spent in a variety of sectors (e.g. public, private and charity sector). This perhaps reflects the high turnover rate of small businesses within the UK. The results support the findings of Kolvereid and Moen (1997) regarding the capability and likelihood of EE courses producing business start-ups, which also suggests that there will be an increase in EE graduate start-ups due to the growth of the sector as predicted by Zellweger et al. (2011) and Walter et al., (2013). These results also suggest, however, that whilst EE has value in producing individuals who are self-employed, it also assists with other career alternatives.

Table 5 highlighted the importance of specific course content towards certain career outcomes. “General Enterprising Behaviour” value from EE courses was most strongly related to business start-up, growth and internationalization content. Respondents can be seen to discern between entrepreneurial and enterprising content and seem to value content that both provide to their

career outcomes. Similarly, this discernment between enterprising behaviour was also evident within the “Intrapreneurship” and “General Activities in Organisation Worked for” career outcomes. It was noticeable that the “Self-Employment” option identified the greatest level of value from the course content in terms of the number of content areas that were significant; with opportunity recognition, marketing, growth and Bricolage/Resourcefulness/Effectuation of greatest significance.

Another notable finding was the value perceived from the Bricolage/Resourcefulness/Effectuation course content across the various career outcomes. Bricolage/Resourcefulness/Effectuation was regarded as a key driver of EE satisfaction within all organisational contexts. The ability to maximize limited resources/budgets for organisation gain can therefore be seen as a key competency. This is especially important in difficult and uncertain economic times where organisations have to make do with limited and even reducing assets (Perry et al., 2012; Smolka et al., 2016).

**Conclusions**

The evidence suggested here indicates that EE programmes provide value both in terms of helping to enable business start-ups and also in supporting alternate career paths, through the enterprising knowledge and skill sets graduates acquire during their specialised studies. This study contributes to the extant knowledge by recognizing and measuring these contributions. For example, this study enables discernment between different EE course components and their value for different career outcomes.

This study has several implications for both policy and practice. Furthermore, this study impacts on several stakeholders including educational bodies, the HEI sector, entrepreneurship educators, enterprise support agencies and the small business community. The evidence presented here suggests that many EE topic areas have a positive impact on effective self-employment outcomes. The HEI sector must, however, continue to evaluate its practices and measure the effectiveness of its graduates in terms of achieving sustainable business start-up. In course design, the evidence suggests that students value both the enterprising and entrepreneurial skills and knowledge components and discern value between them in their later careers. The value ascribed to Bricolage/Resourcefulness/Effectuation course content is of particular interest given its currency within recent EE literature (Perry et al., 2012). Further research is required here to discern between effectuation and bricolage competencies for EE graduates. Moreover, the findings suggest that EE graduates typically experience portfolio careers with multiple occupations in different sectors and roles within both employment and self-employment. Thus, it is important that EE programme design includes both Enterprising and Entrepreneurial components to meet the future requirements of their graduates post-graduation. The study has confirmed the value of EE towards self-employability and other career options. This should inform Enterprise support agencies and small businesses regarding the value of HEI offered provision.

The study recognizes the limitations of this survey data in terms of the size of the sample, number of HEIs evaluated and its point in time design. Moreover, the study recognizes that gathering data on individuals over time requires either retrospective recall or real time data

gathering (Perry et al., 2012). In this study, the data has been captured retrospectively, thus is potentially subject to recall biases (Eisenhower et al., 2004).

Further qualitative research is also required to explore the detailed career histories of EE graduates and to fully explore the value obtained from their EE courses. Moreover, the authors of this study recognize the need for further supplemental survey evidence from different country contexts. There is also a need to evaluate the value of specific forms of EE including female entrepreneurship, social entrepreneurship, technology entrepreneurship etc.

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